Rhinitis = Inflammation → nasal mucosa

Sinusitis = Inflammation → sinuses

↳ incl. Infection + Inflammation

Rhinosinusitis = Inflammation < nasal mucosa + sinuses

↓

usually used since close proximity

↳ NB can get isolated conditions

→ Eg tooth → spreads to above maxillary sinus for Eg.

(Maxillary Nn. (CNV2) injury also = pain)

NB know Basic Nasal Anatomy

→ 2 nasal cav.

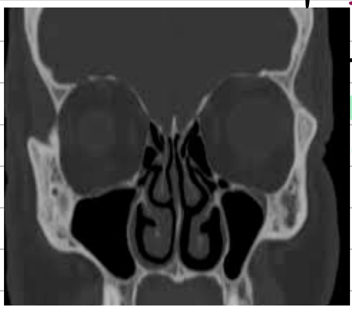
→ 3 Turbinates (on lateral walls) < ↑ Surface Area, warm, Humidify

→ 3 meati (spaces lateral to turbinates)

↳ All drain specific sinuses

⇒ Except Inferior meatus = Nasolacrimal Duct

↳ why nose stuffy when cry



→ NB notice how close all structures are to each other

Any Infection = easy spread

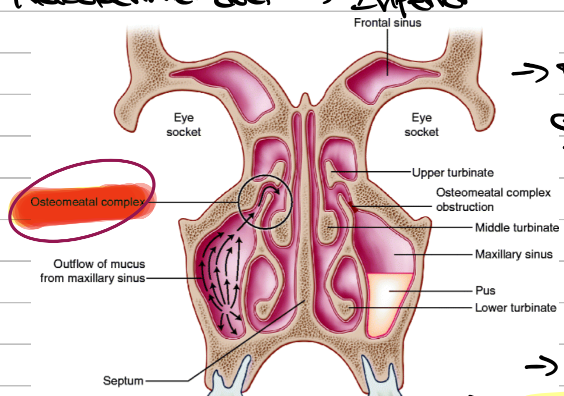
↳ Brain

↳ Eye

Sinuses:	Drainage: (meatus)
Frontal	→ middle
Maxillary	→ middle
Ethmoidal Ant.	→ middle
Ethmoidal post.	→ Superior
Sphenoidal	→ Sphero-Ethmoidal Recess
Nasolacrimal duct	→ Inferior

} Ostiomeatal complex NB

} look like honeycomb



→ Build up occurs quickly

All mucosa = RE mucociliary escalator

→ Goblet cells!

→ Seromucous Glands

Cilia Action lockup:

- infection
- pH △'s
- Drugs
- Smoke

Sinusitis Dx:

↳ Clinical Dx

↳ Sympt:

- Nasal obstruction (morning = built up mucus, give time to clear!!) (Post nasal drip)
- Purulent Rhinorrhoea (PND) (purulent = bacterial; clear also)
- Viral → 2° bacterial
- facial Pressure (Never Alone) (only facial pressure ≠ sinusitis)
- * Hyposmia / anosmia (↓ smell)

↳ Nasal Exam: oedema / polypoid mucosa

: Purulent Rhinorrhoea / PND (post nasal drip)

→ Duration: Acute : 1–4 weeks

Chronic : > 12 weeks

↳ Aetiology → Acute : Mostly infective (txt)

→ Chronic : Mostly inflammatory

↳ call ENT department

1 Acute: (Infective) *

↳ Viral: → Rhinovirus (50%)

→ Influenza / parainfluenza

→ RSV

→ Enterovirus

↳ Bacterial: (SINS) → S. Aureus *

NB * → S. pyogenes *

SINS = Sinusitis (bacterial) → H. Influenza *

→ Moraxella catarrhalis *

↳ fungal: (invasive Rhinosinusitis)

↳ Aspergillus

↳ Rhizopus (mucormycosis) super NB!!

NB Immunocompromised pt. with Acute Sinusitis = txt as fungal & call ENT surgeon!!

Acute + Rhinosinusitis = Antifungals + ENT Surgeon

Acute → Pathophysiology:

→ Inflammation of nasal mucosa

→ ↓ cilia function + oedema *

⇒ Blockage of ostiomeatal complex

= unventilated sinus

↳ initial ↑ pressure ⇒ (−) pressure ensues

2° bacterial infection! { ↑ oedema + Exudate ; ↓ Gas XO } Due to (−) pressure

↳ Ideal bacterial medium

Viral vs Bacterial:

Viral = 1st → almost Always

Bacterial = 2° to 1° viral infection (after ± day 10)

↳ Double sickening NB

↳ Severe local pain (unilateral predominance)

↳ Discoloured Rhinorrhoea NB

↳ Fever > 38°C

↳ ↑ CRP NB * NB — super NB

txt = Symptomatic: → can use Antihistamines but will take a while to kick in.

↳ Decongestants + Steam inhalation

→ NB watch out for Rhinitis medicamentosa

↳ Analgesia (Tylenol)

↳ Nasal Douche — 500ml H2O; NaCl (table salt) Ts; Bicarbonate of soda Ts

(community Acquired) CAI

↳ AB → Amoxil (1°) → not same S. Aureus cover

→ Augmentin (2°) → Broad (co-Amoxiclav)

↳ HAI (Hospital Acquired) → take too long

✗ Intranasal Steroids = not effective txt

✗ Systemic Steroids = rarely needed but can be Adjunct

↳ Surgery < non-resolving sinusitis; complications

↳ ENT Surgeon

Chronic Sinusitis → Inflammation based! *

Pathophysiology = complex + poorly understood

↳ But basically: Severe inflammatory Response

Due to exogenous stimulus *

⇒ Almost acts as if its Autoimmune in a sense

⇒ 2 types of Chronic Sinusitis: *

↳ CRSsNP (No Nasal Polyps)

↳ CRSwNP (with Nasal Polyps)

Txt: → AB short course

→ Steroids (topical & systemic) (Acute ≠ Chronic)

steroids in chronic

→ Nasal Douche (NaCl/ board)

→ Specialist → polyp removal etc.

↳ Chronic = Always go to specialist NB!!

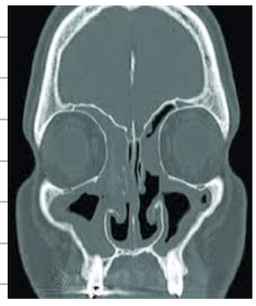
How know its a polyp? → NB in SI exams

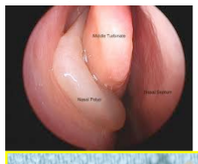
↳ Grape shape

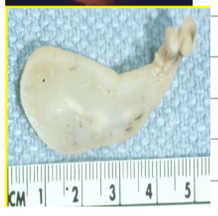
↳ No sensation of touch

↳ Not bleed (+ pale)

} NB for future!!





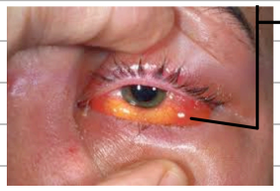


http://morancore.utah.edu/basic-

↳ orbital vs pre-septal cellulitis! NB to grasp now!

Chandler Category (2) → Orbital cellulitis

↳ Signs:



- Chemosis (conjunctival oedema)
- Proptosis (eye pushed forward)
- ↓ Range of movement
- Vision affectation
  - ↳ colour vision first (R/G)
  - ↳ ↓ visual Acuity
  - ↳ RAPD (NB) ← Relative Afferent Pupillary defect (NB)

↳ Examination finding → Asymmetric pupillary Rxn to light

Chandler Category (5): Cavernous Sinus Thrombosis

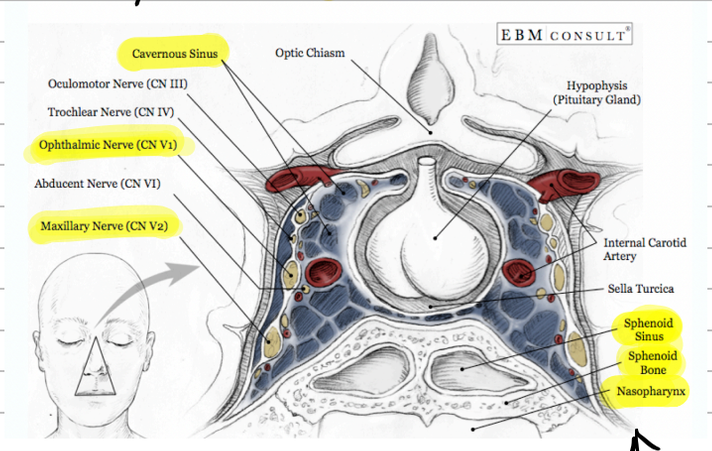
↳ DEADLY (NB DEADLY)

↳ Start txt + refer to specialist

↳ Clinical Signs = same as orbital cellulitis

V1 = ophthalmic Nn. → (+) V1 & V2 /all out

V2 = Maxillary Nn. → (+) Bilateral orbital oedema



Complications:

Acute → Orbital * / Intracranial * / Osseous * } proximity

Chronic → Mucocele

Intracranial Complications: *

↳ meningitis

↳ Epidural

↳ Subdural

↳ Intracranial } Abscess

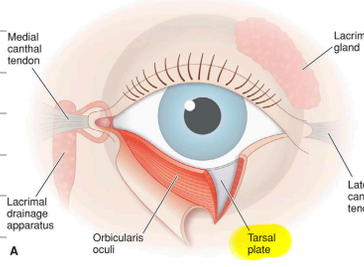
↳ Cavernous sinus thrombosis NB NB

Staph Aureus!

(NB NB)

Orbital Complications: *

Chandler classification



1) Pre-septal cellulitis — anterior to tarsal plate — Etiology = Skin/dental infection

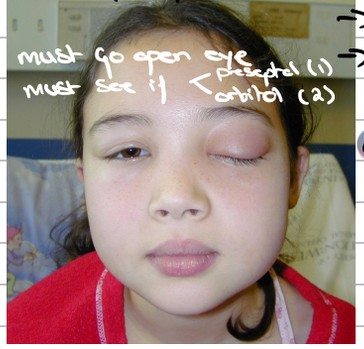
2) Orbital cellulitis — posterior to tarsal plate

3) Subperiosteal Abscess

4) Orbital Abscess

within orbital septum = tarsal plate (thick layer of connective tissue)

5) Cavernous Sinus Thrombosis



→ can't see if C1/2

→ likely not (5) since if it was = usually bilateral orbital oedema NB

Osseous Complications: *

Pott's Puffy tumour → Always check for Intracranial Abscess too!!

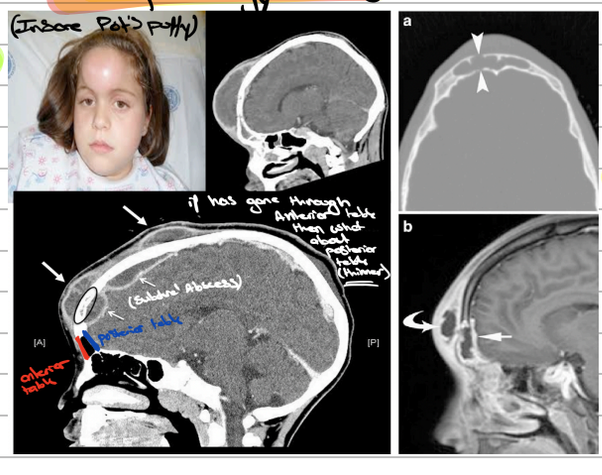
↳ Subperiosteal Abscess overlying frontal sinus

Osteomyelitis of Anterior frontal sinus table

↳ tables are so thin = can go Intracranially too

⇒ Always have a CT-Brain contrasted done.

⇒ not only Needle Aspiration but also Address the Sinus pathology = NB!



NB to Do CT to Check for Intracranial Abscesses too!!

Chronic Complications:

↳ Mucocoele

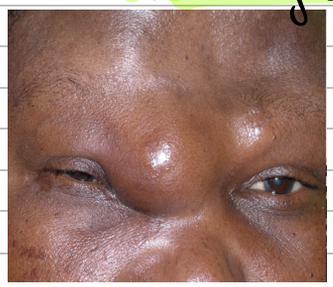
→ pathophysiology:

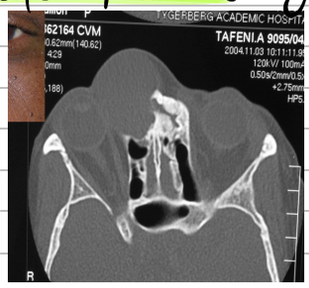
- Sinus = closed off
- Sinus secretions continue
- Bone = thins out
- Surrounding deformity ensues

NB: Frontal = most common; Sphenoid = least common

Rx = drainage

Pyocoele = pus





When to Refer to ENT Specialist:

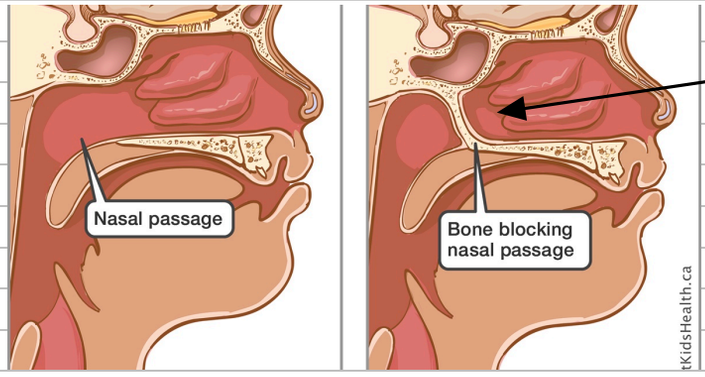
↳ non-response to ABS → Chronic = Always!

↳ complicated ABS → (Acute Bacterial sinusitis)

↳ chronic sinusitis (Any)

↳ fungal sinusitis / Malignancy — unilateral obstruction; Rhinorrhea; Blood tinged mucus

⇒ NB immunocompromised + Acute sinusitis = worry about Aspergillus & mucormycosis (Rhizopis) (NB!!)



Nasal Obstruction:

Anatomy Derived → DDx

Age Derived → DDx

(2 NB questions:)

1) unilateral / Bilateral? (NB)

2) Does it come & go or constant?

↳ if come & go = mucosa (Base ≠ 0)

↳ constant = structural

Anatomy derived DDx

NB

Mucosal

↳ Rhinitis

↳ Polyps

↳ Masses

Structural:

↳ Deviated Nasal septum

↳ Concha Bullosa

- Middle turbinate = air cell in.

↳ Additional air cells

↳ Agger Nasi cells } cause obstruction

↳ Haller cells

Age derived DDx

Pediatric	Adult
Neonate → failed development of a hole.	Allergic rhinitis
Choanal atresia	Common cold
Child	Anatomical abnormalities
Adenoid hypertrophy	Trauma
Allergic rhinitis	Polyps
Foreign bodies	Foreign bodies
Meningo-/encephalocoele	Adenoid hypertrophy — Adults shouldn't have Adenoids
(polyps) → kids + polyp = think of cystic fibrosis DDx.	Neoplasms

NB